



NFR & Architectuur

Bekeken vanuit de architect


SPider sessie
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MANAGING RISK 

Introduction

- Architecture can be practiced at multiple 'levels'


- Today we explore the use of NFRs and the relation with the RE discipline from
 - A software architecture perspective
 - An enterprise architecture perspective
- We focus on the various roles and responsibilities within these disciplines

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Software architecture - definition

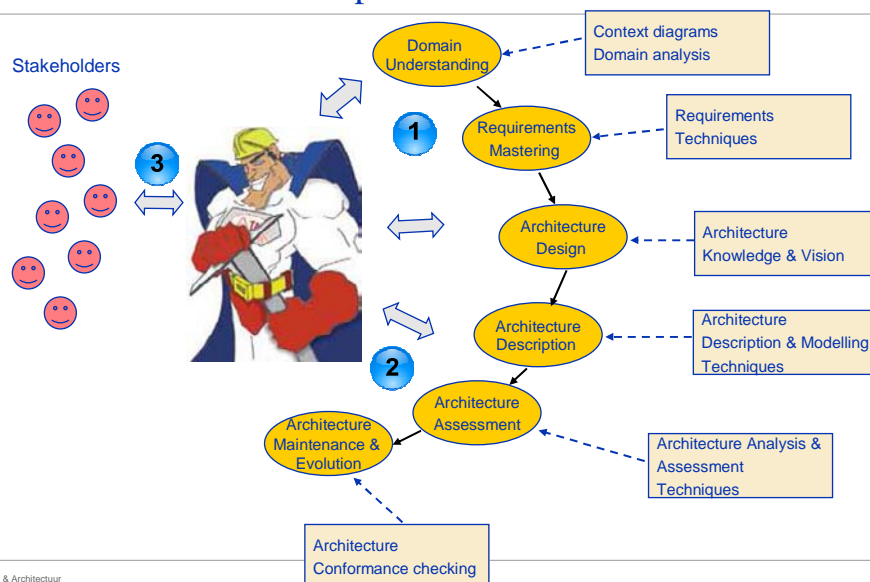
- “The fundamental organization of a system embodied in its components, their relationships to each other and to the environment and the principles guiding its design and evolution” [IEEE-1471-2000]
- “Software architecture encompasses the **significant decisions** about
 - the **organization** of a software system,
 - the selection of the **structural** elements and their **interfaces** by which the system is composed together with their **behavior** as specified in the collaboration among those elements,
 - the **composition** of these elements into progressively larger **subsystems**,
 - the architectural **style** that guides this organization, these elements and their interfaces, their collaborations, and their composition

Software architecture is **not only** concerned with structure and behavior, but also with usage, functionality, performance, resilience, reuse, comprehensibility, economic and technological constraints and tradeoffs, and aesthetics.”

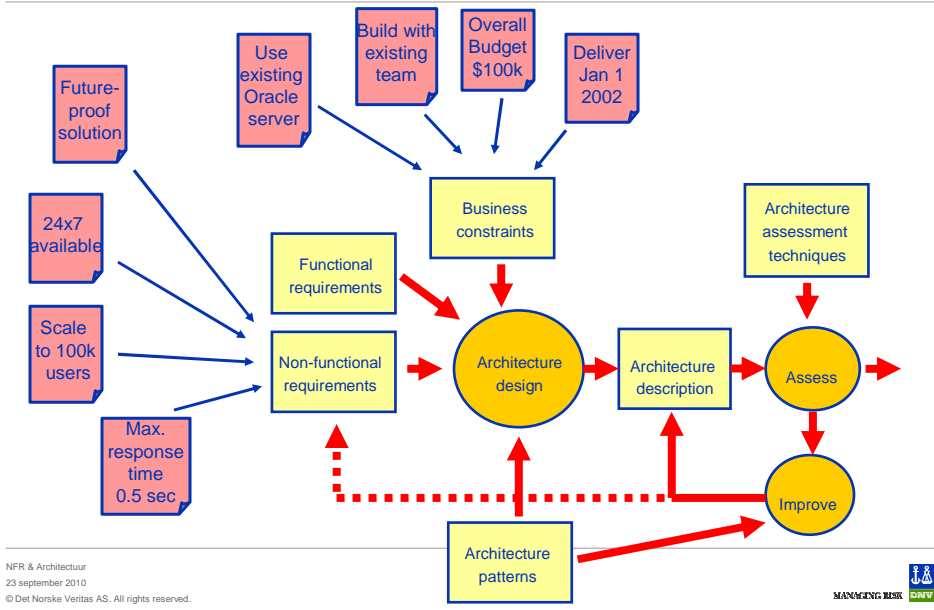
NFRs

[Booch, Kruchten, Reitman, Bittner, 1995]

Software architecture in practice



Software architecture and requirements engineering



Software architecture – A changing discipline

- The need for a software architecture that guides system design, development, and evolution is increasingly being recognized
- As a result, the 'architect' function is positioned more centrally in the organization
- This increases the overlap in roles and responsibilities with those of req. engineers



How to become an architect as well

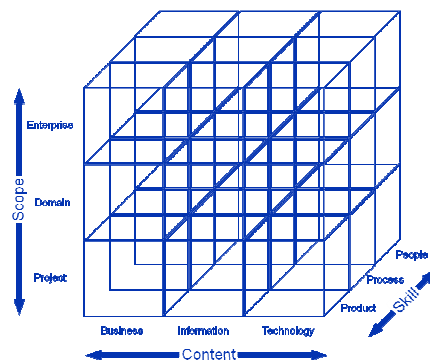


Enterprise architecture - definition

- “A coherent whole of principles, methods and models that are used in the design and realization of an enterprise’s organizational structure, business processes, information systems, and infrastructure.”
[Lankhorst et al. 2009]
- “The organizing logic for core business processes and IT infrastructure reflecting the standardization and integration of a company’s business model.”
[Ross, Weill and Robertson, 2006]
- “The description of current and/or future structure and behavior of organization’s processes, information systems, personnel and organizational sub-units, aligned with the organization’s core goals and strategic direction. Although often associated strictly with information technology, it relates more broadly to the practice of business optimization in that it addresses business architecture, performance management, organizational structure and process architecture as well.”
[Wikipedia]

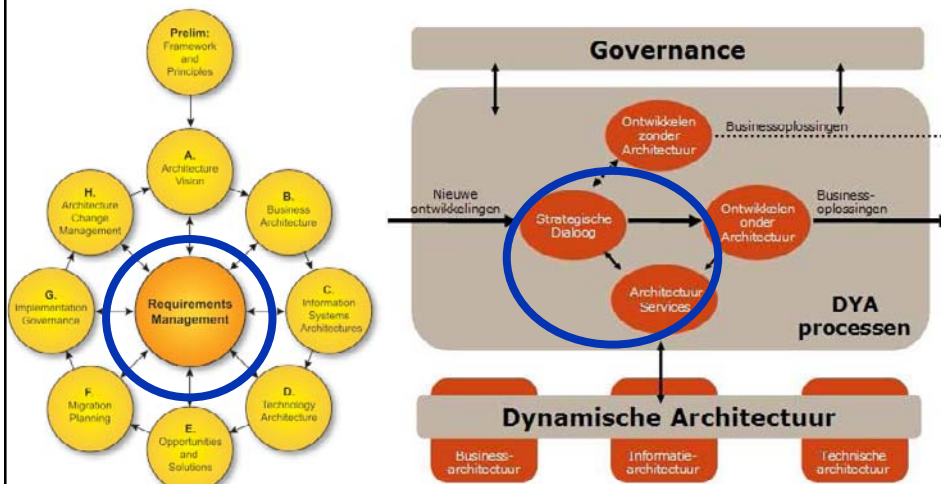
Enterprise architecture in practice

- Many enterprise architecture methods and frameworks exist:
 - TOGAF, DYA, Zachmann, IAF, Maes, Gartner,
- Common elements:
 - Distinction between perspectives: business architecture, information architecture, techn(olog)ical architecture, often described at different levels of abstraction
 - Meta-models to describe the architectures
 - Processes to translate strategy and vision to realization
- Typical strategic goals in organizations
 - "Increase customer intimacy"
 - "Increase efficiency by integrating applications"
 - "Improve reuse by adopting a SOA"



NFRs

Enterprise architecture and requirements engineering



Enterprise architects as Enterprise Requirements Engineers

- Enterprise architects encounter (enterprise) requirements on various occasions:
 - In the Enterprise Architecture board
 - During Application Portfolio Management
 - While sketching future scenario's
 - While creating roadmaps
 - When interpreting mission statements / 'planbrief' / ...
- But in practice it is often hard for them to acquire and maintain grip on this enterprise requirements engineering process
 - Enterprise architects not 'sitting at the table' of the business
 - Ivory tower syndrome, architectures as thick documents with fuzzy rules and principles
 - No strong coherence between architecture on enterprise and domain/project level

Summary

Software architecture perspective

- The professionalization in the architecture discipline leads to rich 'architect' roles
- For the architecting process it is imperative that all NFRs are constantly managed
- Clearer definition of roles and responsibilities (software architect, requirements engineer, business analyst, solution architect, etc.) helps to 'divide-&-conquer'

Enterprise architecture perspective

- Dealing with strategic goals and needs corresponds to managing NFRs on the enterprise level
- Enterprise architecture methods and frameworks acknowledge the need for requirements engineering, but offer no concrete guidance on who is responsible for what
- Explicitly defining enterprise RE-responsibilities may help enterprise architects in convincing the business of their added value

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